

“Regulation of Urban Space and Construction in the Late Ottoman and French Mandate Period”—The Case of Beirut (1840-1940)

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Abstract: Starting with the declaration of Tanzimat in 1839, the transformation of administration, law, taxation, property rights, education, urban planning and public works were initiated, which caused the regulation of urban and construction regulations as a tool for achieving a modern state. 1840, the date of the Health of Towns Report, marks a stage in the growing concern with health. The period between 1840-1940 is a recognisable date in history, with the outbreak of the Great War marking the end of an era. It also marks the date of a major enquiry into building laws and it also sees the virtual completion of the process of the incorporation of the health controls into the building regulations. In this date several regulations were enacted concerning the buildings and the streets and implemented in Beirut. The main goal of this article is to understand the impact of Building Codes on the construction of the late Ottoman Heritage and its architectural typology.

Key words: Word, building codes, architectural typology, building construction, conservation historic buildings.

1. Introduction

Understanding an overview of the history can draw the development of characteristics that led to the acknowledgement of built heritage influenced by regulations. Before the 19th century, it is known that several imperial orders concerning the buildings were issued for several reasons, such as regulating the construction types, some building elements (roofs, eaves, terraces, oriels) and building materials in order to mitigate fire risks, and limiting the heights of houses to maintain social order in Istanbul.

Beirut at that time was inside its walls, it was formed by gathered and adjacent houses in a narrow street of 4.5 m width and land with 750 m long and 370 m width, surrounded from its four sides by defence walls. The land use outside the walls was agriculture. It was

largely a mixture of mulberry plantation trees and an agricultural land use, which had good influence in the production of silk that began in the 17th century in these garden fields [1]. Few huts were erected within the plantations that were probably built for the cultivation of silk. Huts and small buildings of stone and wood were used as storages, workshops, and small permanent residence houses. In 1839, an Official Record was formulated, promoting the construction of masonry houses and limiting their height to 15 meters only regardless of religious origin. It also requires the regulation of the urban space by the widening of main roads, opening of squares and suggesting new regulation on construction techniques. Growth of Beirut was developed in 19th century when some wealthy Beirut families escape from the old city to enjoy greenery, a panoramic view and the fresh air. Defensive walls were then demolished, and new construction was permitted to form the Beirut house with its new architectural typology in 1860s complying

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with new regulations. This paper contributes to the subject by allowing us to comprehend the transformation process as a continuous development of architectural typology and construction in Beirut city adapting some western urban elements and construction materials into Beiruti house.

2. The Impact of Building Codes on Ottoman and French Mandate Periods (1840-1940)

Built heritage presents past developments that are significant to the history of the evolution of built environment. Before 1840, the Ottoman authority issued several imperial orders concerning the buildings, such as limiting the heights of houses according to ethno-religious origin to maintain social order. Although in Europe, similar measures were been taken with different purposes as improving urban health. At that time, Beirut was a small old city with a population of around 8,000 gathered around the port with an urban fabric of 15 hectares organized as networks of narrow streets of 4.5 meters width, that were mainly of two types, the through open ended street which was considered a public right of way and had to be at least wide enough for two packed mules to pass, and the cul de sac, which according to Islamic law, is considered to be the private property of the people having access from it to their front doors. Structural elements were found above the streets called the *sabat*, a room bridging the street, and the buttressing arches spanning between walls on either side of the street to provide structural strength and support for both opposite walls [2] (Fig. 1). As a result, regulations on buildings and streets, codes on expropriation and land use were adopted and a series of measures were proposed to improve the layout of the Ottoman cities and avoid the spread of fires [3]. The main causes of the fires were candle, lighted coal and inflammation of chimney incomplete hydrocarbon combustion. Thus, the flammable material in construction was then prohibited, the width of streets was regulated according to their role in the road network, and cul-de-sacs were also

prohibited [4]. An addition record was formulated promoting the construction of masonry houses and limiting their height to 15 meters only, regardless of religious origin. It also required the regulation of the urban space by the widening of main roads, opening of squares and suggesting new regulation on construction techniques. Again, despite the differences, similar measures were taken in Europe, giving presently the urban scale of many ancient cities. In relation to the buildings, a large arch perpendicular to the street and closed to outside the court, oriented to the north which is the coldest place during the summer, and the central court houses, were main morphologic characteristics. The central court house was identified by the internal courts to protect from noise and dust from the street. Another identified kind was a structure with one level, closed to outside and composed of several rooms arranged in L, or in U shape around a court called *fushat ad-dar* [5] (Fig. 2). Technical eclecticism comes into view during the second part of the 19th century when the preindustrial city started expanding beyond its medieval walls. The result of the urban expansion was due to the migration of the urban bourgeoisie outside the city walls settling on the rural suburbs [6].

The atmosphere of the quarters attracted wealthy merchants and residents to move out and designed mansions, came to be identified regionally as Beirut's aristocratic class. The new prestigious mansions were designed due to the foreign building materials that became available and technological changes reflect the desire of an emerging merchant class, conducting trade with Europe and emulating western lifestyles. The use of imported materials from different sources: wrought-iron I-beams and roof tiles from France, mechanically-cut timber from Romania, cast-iron balustrades and hardware from England, and marble tiles and slabs from Italy [8], was growing. Such exchange may have inspired the merchant's choices in new house design. The merchant class wanted a more comfortable residence where he was protected from the leakage falling from the flat earth roof if it was not rolled

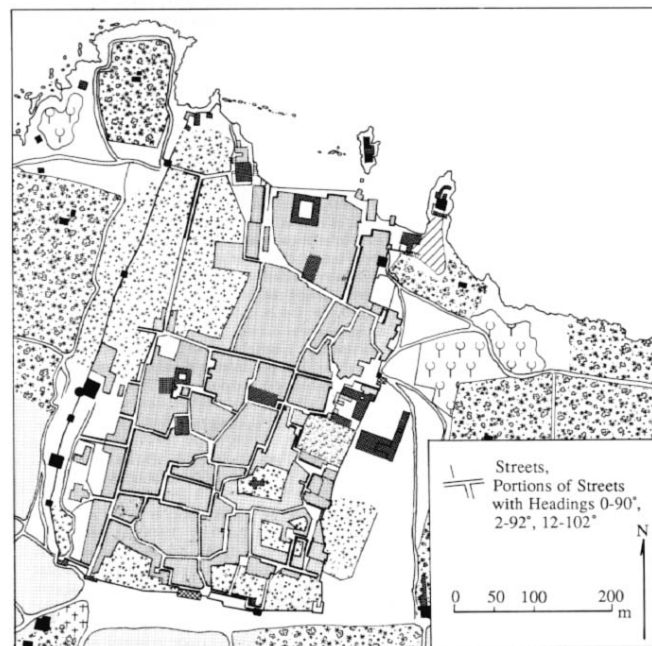


Fig. 3: The surviving grid-pattern of Beirut.

Fig. 1 Old Beirut Map (1840), showing its border, gates, edifices and fortification towers [7].

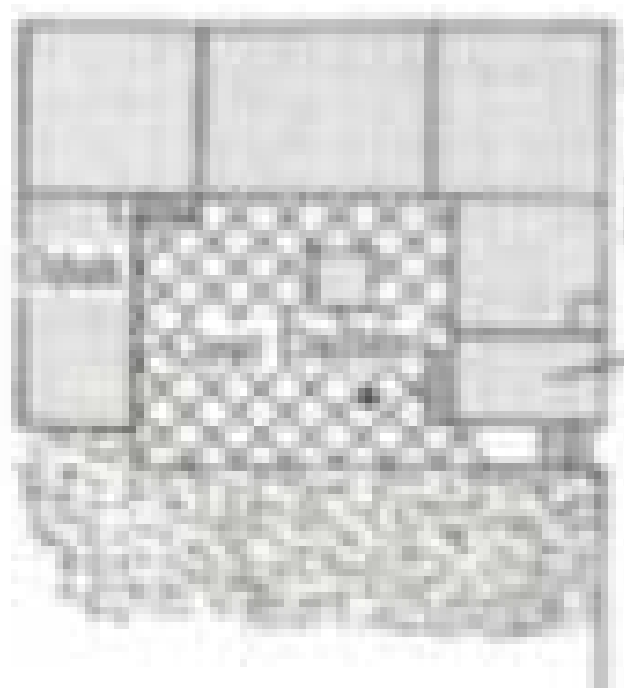


Fig. 2 Plan of Mansour Eddeh in old Beirut, 1850 [7].

during autumn. Merchants travelled to France, and saw the tiles and their advantages giving away the flat earth roof and expressed a desire to copy the Occident. This expansion led to the creation of a new building type, two symmetrical rooms were added to the *iwan* to form

the Beirut house, with its triple arch, central hall and red tile roof [9]. This process should be qualified as empirical since it continued to be informed by a traditional knowledge while still open to new materials (Fig. 3). The safe and good construction of buildings

was then recognized as of the utmost importance in the 1882 building code. Numerous regulations were assembled in a code of construction that was partially applied and was prepared in Istanbul and designed for Beirut city was then based on principles which have been sufficiently amplified to provide for varying local conditions. The purpose of the Building Regulations in the past was to mitigate the health and safety risks of the dwellings that were being constructed to meet the needs of the industrial revolution. The byelaws, which set only basic standards for drainage, structure, fire spread, daylight and ventilation, were adopted and enforced in different ways. During the late Ottoman period, the quarter's built fabric grew rapidly, vertically and horizontally. The vertical growth is evident from many existing single story houses that had additional floors added to them in the late 19th and early 20th centuries. In 1920, Beirut became the capital of Greater Lebanon and new materials such as concrete were employed, and methods of use have changed radically, so it was presented in this city as a substitute

for a traditional one. In terms of building heights, concrete construction techniques became more complex during 1920s and allowed for taller buildings and at the same time houses became then street-aligned. Until 1920 the Ottoman building code still basically restricted building heights to a maximum of 18-21 meters (depending on the width of the street). During the French mandate period (1920-1940) building was erected to a height of 26 meters (Fig. 4). The basic approach of the Ottoman building code to control and regularize urban form by restriction, by defining minimum street widths, minimum setbacks and distances, and maximum building heights in relation to the streets, was altered by the new Building Code of 1920 [10]. It stipulated design standards to use in buildings and gives simple design rules for most masonry and timber elements for traditional domestic buildings. The Mandate State produces strategically road-infrastructure projects with tramway line that made changes in the demographic changes, and residential architecture [11].

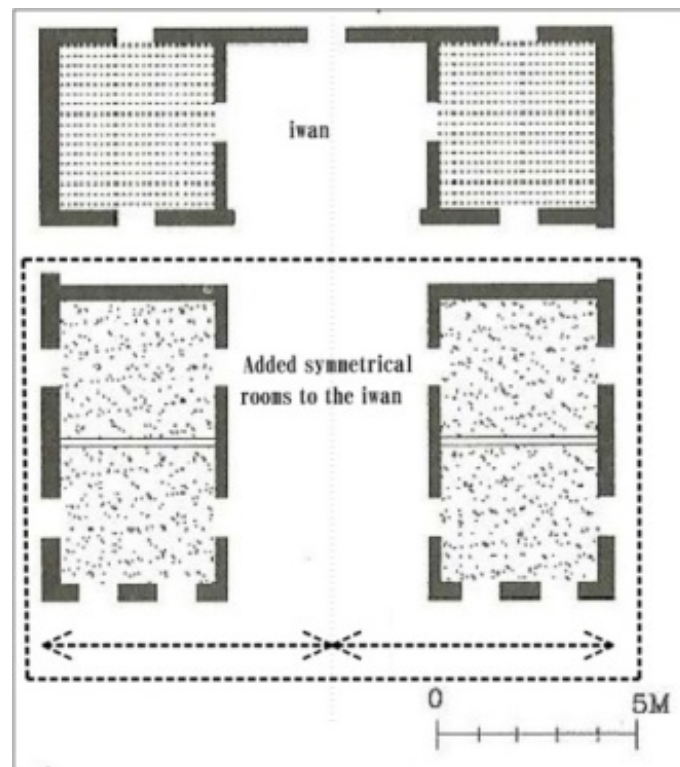


Fig. 3 The two symmetrical rooms were added to form traditional court as shown that was transformed later to covered hall. [9].



Fig. 4 To the left, type of Beiruti house (Late Ottoman period) consisting of two floors and roof frame of timber with red tile (1860). To the right, notice how buildings (French mandate period) changed radically as per heights affected by building code and regulations. (Hammoud J. 2016).

3. Analysis of the Application of Old Regulations or Codes in the Three Case Study Buildings

In 1896, the Beirut municipal engineer Amin Abd al-Nur edited and translated the 1882 Ottoman building code. In its first part, the construction law regulated the width of the streets; part two specified the procedures of street alignment. The following parts of the law were concerned with fire regulation and prevention, unifying the facades of houses facing the street, the norms for raising buildings, permissions, fees, prohibitions of restoration, registration fees, and penal codes [12]. The most parts that are useful for the construction system are the part 4, 5 and 6. Part 4 of the code, mentioned the limits of props and cantilevers extending over the straight line of the façade. Roads that are 12 cubits wide and above, a prop can be one cubit and a half (70 cm).

Roads that are 10 cubits wide shall limit the balconies to one cubit and a quarter. Article 27 from the code required that the covered and uncovered balconies constructed on the façade are not to be less than five cubits high from the surface of the road. The length of balconies should be two thirds of the facades on the road and must be straight. Article 29 requires the projection of doorsteps on the façade to be one carat (1.2 cm), while the projection of columns and terraces whether rounded or square must be two carats. Wooden

or iron window frames and sashes must be four carats. The projection of rain gutters with their boxes, as well as shop extensions and facades made of glass, in addition to nets and iron frameworks placed on the windows of the lower floors and stores and the adornments placed on the doors of the stores must all be six carats (Fig. 5).

Part 5 of the code mentioned the heights of stone buildings; the height of any side of a building located either on the road or internally is 24 cubits which is 10.97 meters from the surface of the ground to the roof of the wooden closure.

Alleys of 12 to 15-cubit width (6.85 meters), the height of a building would be 28 cubits (12.8 meters). As for the hipped roofs and airplanes, their height shall not exceed six cubits (2.75 meters). In the case studies, we can notice that the height of the houses from street levels is almost near to the codes, but the hipped roofs exceed the measure required in the code (Fig. 6). The case of *Bchara el-Khoury* mansion is same as mentioned in the code where Buildings' corners that are located on two roads of different capacity, its specified height measurement is related to the wider road which is 15 cubits (6.85 meters). It means that the height of the mansion can be 12.8 meters max. In this mansion and as shown in Fig. 7, the height is 12.9 meters from the ground which is almost the same as required. Measuring the height of the risers, shows an extra 1.2 meters from the street level that shall be added



Fig. 5 An example of props, projections and cantilevers in three buildings (Hammoud J. 2016).



Fig. 6 The height of the Kaaki house abide with the building height code but the height of the hipped roof exceed the required height (6 cubits = 2.75meters) (AbiRached E. 2016).

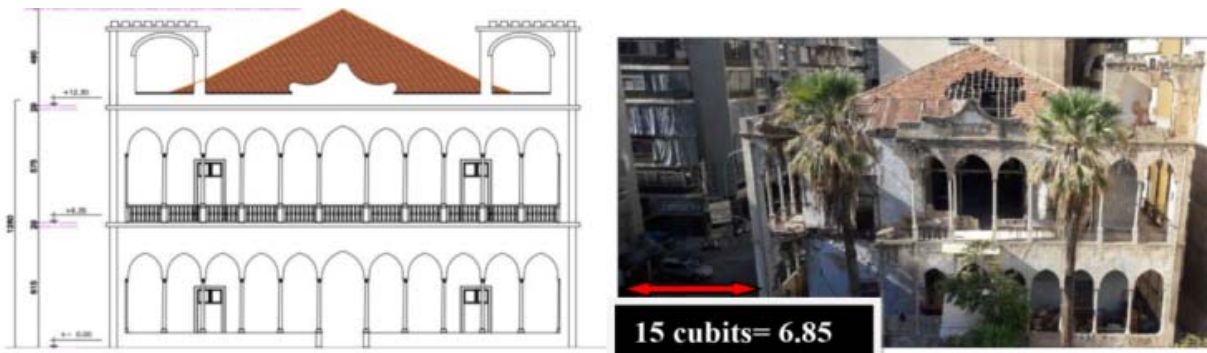


Fig. 7 The height is 12.9 meters from the ground which is almost the same as required in the code (AbiRached E. 2016).



Fig. 8 Showing the materials used in the kitchen in Kaaki house abiding article 41 in the code (Hammoud J. 2016).

to the height, and then the total height does not comply with the codes. The height of the hipped roof is 4.9 meters that also exceeds the height required from the code. From part 6, Fire Prevention Measures, articles 38 and 41 mention that the stoves should be built from stone or bricks with an arch at the top and no kitchens may be allowed within the floors of wooden buildings. Kitchens usually were covered by stone vaulted ceiling at ground floors and brick or stone at upper floors (Fig. 8). From these analyses it can be concluded that the three case studies were complying the building code at the time.

4. Conclusion

Considering the relation of urban regulations and the transformation of urban space and construction in the late Ottoman period, allows us to comprehend that Beirut was far from being regularized at the end of the 19th century, displaying a vast architectural diversity, which stayed unchanged until 1940s due to the conflicts in the codes and the difficulties in the application and the lack of regulatory sanctions.

On the other hand, the structural strategy has evolved as a direct response to available material technologies, functional needs and guidelines from the building codes. This is evident in the way each primary material manifests itself in the building. The spatial planning of the house is a direct resultant of the structural system and together they form an architecture which is cohesive providing an

understanding of the systems used in their making which represent the richness of Beirut heritage. The results of this research can aid future conservation efforts by passing new codes, as well as to encourage the conservation of these buildings which form an important link in the historic evolution of structure and the architecture of the region in its time-period.

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